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Book Reviews

Langman's Medical Embryology. By T. W. SADLER. 6th edition. (Pp. xii+411; numerous illustrations; £20.50.) London: Williams and Wilkins. 1990.

Learning embryology is not an easy task for most medical students. 'A'-level courses contain less structural biology than in the past, and many medical schools have restricted the time available for studying embryonic material in practical classes. The textbook is the key teaching aid for imparting that essential feel for changing three-dimensional structure; without this, information about developmental mechanisms and descriptions of congenital malformations are irrelevant. One of the attractions of *Langman's Medical Embryology* has always been Jill Leland's drawings; other illustrations have been added with each new edition, but the original drawings still provide one of the great strengths of this book. Some of my students disagree with me on this, finding three-dimensional drawings more difficult to learn from than simple diagrams which can be easily copied. This is perhaps a matter of personal taste, and more likely to be a problem for the complex pattern of development of the heart than for more easily visualised systems such as the urogenital and alimentary systems, in which there is no conflict between good artistry and simplicity of line. Colour is a great help, adding information and aiding interpretation at the same time; it has been well used in the last three editions of this textbook.

Tom Sadler states in his introduction to the sixth edition that the text has been updated, figures have been added illustrating new concepts, and summary tables and charts have been incorporated where appropriate. The success of the new edition depends on how well these changes have been made, and I have to confess to some disappointments. The account of preimplantation development still fails to mention compaction, a key event for the onset of cellular differences and for blastocyst formation, and a good indicator of embryonic health *in vitro*. The neural crest has been given much more credit for its developmental importance, but the quality of the additions is patchy. It has not been added to the otherwise excellent set of histological drawings illustrating somite development (easily altered for this purpose – I did so some years ago to make my teaching slide more accurate). At the beginning of the head and neck chapter, a diagram has been added which is described as a 'Schematic representation of the migration pathways of neural crest cells from fore-, mid-, and hindbrain regions into their final locations in the pharyngeal arches and face'. The outline, acknowledged as originating from Drew Noden's studies on avian embryos, is clearly avian, as are the arrows indicating the forebrain as the origin of crest cells migrating to the frontonasal region. It was unnecessary to make these errors when excellent descriptive accounts of cranial neural crest in human embryos exist in the publications of Müller & O'Rahilly and others; if confirmation from laboratory species using pathway tracing techniques is thought to be necessary, studies on mammalian embryos (published before the avian study which was quoted) should have been used as the source material.

Neural crest is also referred to in the context of craniofacial malformations, under the heading 'First Arch Syndrome'. I fail to understand why this inappropriate term is used, when the description beneath it clearly includes abnormalities of structures derived from arches one to six. This section, which ought to be interesting and illuminating, contains several inaccuracies (e.g. 'vitamin A (isotretinoin)'), badly written sentences which thereby convey the wrong meaning (e.g. 'neural crest cells contribute to the septation of the aortic and pulmonary arteries'), and unexplained terms (dysostosis, malar region).

Other aspects of the account of head and neck development are also of questionable accuracy. Table 10-1 summarises the origins of the craniofacial muscles, dividing the cranial mesenchyme on the basis of somitomeres. The existence of somitomeric organisation is not universally accepted, so it is a concept best omitted from an undergraduate textbook until the question is resolved. On the same table, Somites 2 to 5 are stated to be the occipital group, from which the hypoglossal musculature is derived. Again, this information is based on avian data; descriptions of human and other mammalian embryos show four occipital somites, all of which (including the small first somite) contribute to the tongue musculature. Fortunately (but illogically), the account of formation of the occipital region of the skull is unchanged, and maintains the orthodox view that three occipital sclerotomes contribute to the occipital bone.

Elsewhere there are more successful additions and alterations. Table 5-3 provides a useful

summary of key developmental events correlated with time, somite number and embryonic length, indicating relevant figure numbers which illustrate each stage. Another useful addition is the table of teratogens associated with human malformations, which has been added to the summary of the chapter on congenital malformations. Illustrations showing ultrasound scans are a good idea, although one of them purports to show a 4 months infant when it is clearly a fetus.

The urogenital system chapter has been changed to provide a much improved and well integrated account of descriptive and mechanistic aspects of development. Table 15–1 has been corrected so that 'absence of Y' has been substituted for 'XX influence'; Table 15–2 has been improved, and now indicates the cells which synthesise and secrete testosterone and MIS. A simple diagram showing the role of 5-α-reductase in external virilisation has been added, though it is a pity that the opportunity was not taken to describe the consequences of congenital absence of this enzyme. The statement about the origin of the two parts of the vagina is sensibly less dogmatic than in previous editions. An excellent series of scanning electron micrographs showing development of the external genitalia has been added. These were provided by Kathy Sulik, some of whose contributions also appeared in the fifth edition. They are of very high quality. This generally excellent chapter is still marred by the plate illustrating testicular feminisation, now darker and glossier than when it first appeared in the third edition. The educational importance of this syndrome lies in correlating the effects of absence of androgen receptors with developmental consequences for both internal and external genital development and the text needs to be improved. If a picture is thought to be helpful it should be chosen with sensitivity, such as the one in Moore's *Clinically Oriented Embryology*. In my opinion the photograph of the TFS woman in *Langman's Medical Embryology* has voyeuristic qualities, the photograph of the external genitalia is at best uninformative, and the photograph of the inguinal testes during surgery is totally unjustified. The face, and that of the pseudohermaphrodite on the next page, should be camouflaged to respect their dignity as human beings. For similar humanitarian reasons, I dislike the use throughout this book of the term 'patient' instead of 'fetus', 'infant', 'child', 'young woman', etc. as appropriate, to describe the illustrations of congenital malformations. It labels them as things to be looked at. They are people, and this is primarily a preclinical textbook.

I have found a lot to compain about in a book which I basically like. The first edition of *Langman*, published in 1963, was a liberation from the lengthier tomes then in general use, and in the succeeding ten years it was unrivalled as a clear, concise and well illustrated introduction to human development. The market place has changed now, and will continue to do so. If *Langman* is to maintain its position of popularity with its traditional customers it must be husbanded more carefully by its new author.

GILLIAN MORRISS-KAY

Somatotyping – Development and Applications. By J. E. LINDSAY CARTER and BARBARA HONEYMAN HEATH. (Pp. xiv+503; numerous illustrations; £80.) Cambridge University Press. 1990.

The differences between the physiques of individuals are obvious but quantifying these differences has proved to be extremely difficult. Quantifying down to a simple numerical descriptor is both difficult and controversial. Somatotyping has tended to be synonymous with its originator, W. H. Sheldon, a difficult character whose personality coloured many attitudes towards him and his work. Over a period of many years, however, the work that Sheldon started has been developed independently, firstly by Heath and later through her collaboration with Carter.

"A somatotype is a quantitative overall appraisal of body shape and composition, an 'anthropological identification tag', a useful description of human physique" (p. 340)... "designed to quantify in a three figure number components of human physique, which are known as endomorphy, mesomorphy and ectomorphy" (p. 345). By starting with a history of somatotyping and a review of the range of different methods that have been used (together with a series of comparisons between these methods), the authors not only introduce the reader to the subject, through an understanding of the problem posed and the various attempts at solving it, but site it within its socio-scientific background, thereby requiring that Heath and Carter be judged on their own merits and not in Sheldon's shadow.

The authors have clearly striven to present a work that is comprehensive and definitive. It is not the rightness or wrongness of the method that is for review here, but even if one were to express doubts about somatotyping as a technique, the body of otherwise usable information collected here is extremely valuable. Following the background, the main body of this work illustrates the